

Amendment to the Claims

Please cancel claims 1-17 without prejudice to pursuing these claims in a continuation, divisional, continuation-in-part or other application. Following is a complete listing of claims, as amended:

1-17. (Cancelled)

18. (Original) A method of depositing material onto a microfeature workpiece in a reaction chamber, the method comprising:

flowing a first pulse of a first gas through a first gas conduit and a first valve into the reaction chamber; and

flowing a second pulse of the first gas through the first gas conduit and a second valve into the reaction chamber without flowing the second pulse of the first gas through the first valve.

19. (Original) The method of claim 18 wherein flowing the second pulse of the first gas occurs after flowing the first pulse of the first gas.

20. (Original) The method of claim 18 wherein the procedures of flowing the first pulse of the first gas and flowing the second pulse of the first gas are repeated sequentially.

21. (Original) The method of claim 18 wherein the procedures of flowing the first pulse and flowing the second pulse occur at least partially simultaneously.

22. (Original) The method of claim 18 wherein:

flowing the first pulse of the first gas comprises controlling the first valve to dispense the first pulse of the first gas into the reaction chamber; and

flowing the second pulse of the first gas comprises controlling the second valve to dispense the second pulse of the first gas into the reaction chamber.

23. (Original) The method of claim 18 wherein:
the first and second valves are configured in a parallel arrangement; and
flowing the first and second pulses of the first gas comprise flowing the first and second
pulses of the first gas through the first and second valves configured in the parallel
arrangement.

24. (Original) The method of claim 18 wherein:
the first and second valves are part of a valve assembly;
flowing the first pulse of the first gas through the first valve comprises flowing the first
pulse of the first gas through the valve assembly; and
flowing the second pulse of the first gas through the second valve comprises flowing the
second pulse of the first gas through the valve assembly.

25. (Original) The method of claim 18 wherein:
flowing the first pulse of the first gas comprises flowing the first pulse of the first gas
through a first gas passageway; and
flowing the second pulse of the first gas comprises flowing the second pulse of the first
gas through a second gas passageway, the first and second gas passageways being
configured in a parallel arrangement.

26. (Original) The method of claim 18, further comprising flowing a third pulse of
the first gas through the first gas conduit and a third valve into the reaction chamber.

27. (Original) The method of claim 18, further comprising:
flowing a first pulse of a second gas through a second gas conduit and a third valve into
the reaction chamber; and
flowing a second pulse of the second gas through the second gas conduit and a fourth
valve into the reaction chamber without flowing the second pulse of the second
gas through the third valve.

28. (Original) A method of depositing material onto a microfeature workpiece in a reaction chamber, the method comprising:

controlling a first valve to provide a first pulse of a first gas to the reaction chamber through a first gas line independent of a second valve; and

controlling the second valve to provide a second pulse of the first gas to the reaction chamber through the first gas line independent of the first valve.

29. (Original) The method of claim 28 wherein:

controlling the first valve comprises dispensing the first pulse of the first gas into the reaction chamber; and

controlling the second valve comprises dispensing the second pulse of the first gas into the reaction chamber after dispensing the first pulse.

30. (Original) The method of claim 28 wherein:

controlling the first valve comprises flowing the first pulse of the first gas through a first gas passageway;

controlling the second valve comprises flowing the second pulse of the first gas through a second gas passageway, the first and second gas passageways being configured in a parallel arrangement.

31. (Original) The method of claim 28 wherein:

the first and second valves are part of a valve assembly;

controlling the first valve comprises controlling the first valve of the valve assembly; and

controlling the second valve comprises controlling the second valve of the valve assembly.

32. (Original) The method of claim 28, further comprising:

controlling a third valve to provide a first pulse of a second gas to the reaction chamber through a second gas line; and

controlling a fourth valve to provide a second pulse of the second gas to the reaction chamber through the second gas line independent of the third valve.

33. (Original) A method for depositing material onto a microfeature workpiece in a reaction chamber, the method comprising:

flowing a first pulse of a first gas through a first gas passageway in a valve assembly coupled to the reaction chamber; and

flowing a second pulse of the first gas through a second gas passageway in the valve assembly, wherein the first and second gas passageways are configured in a parallel arrangement and are in fluid communication with a first gas conduit.

34. (Original) The method of claim 33 wherein:

flowing the first pulse of the first gas comprises controlling the flow of the first gas through the first passageway with a first valve stem; and

flowing the second pulse of the first gas comprises controlling the flow of the first gas through the second passageway with a second valve stem.

35. (Original) The method of claim 33, further comprising:

flowing a third pulse of the first gas through a third gas passageway in the valve assembly; and

flowing a fourth pulse of the first gas through a fourth gas passageway in the valve assembly, wherein the third and fourth gas passageways are configured in a parallel arrangement with the first and second gas passageways and are in fluid communication with the first gas conduit.

36. (Original) A method for depositing material onto a microfeature workpiece in a reaction chamber, the method comprising:

opening a first valve to dispense a first pulse of a first gas into the reaction chamber through a first downstream main line;

closing the first valve;

opening a second valve to dispense a second pulse of the first gas into the reaction chamber through the first downstream main line; and

closing the second valve, wherein the first pulse of the first gas does not pass through the second valve and the second pulse of the first gas does not pass through the first valve.

37. (Original) The method of claim 36, further comprising:
opening a third valve to dispense a first pulse of a second gas into the reaction chamber through a second downstream main line;
closing the third valve;
opening a fourth valve to dispense a second pulse of the second gas into the reaction chamber through the second downstream main line; and
closing the fourth valve, wherein the first pulse of the second gas does not pass through the fourth valve and the second pulse of the second gas does not pass through the third valve.

38. (Original) The method of claim 36 wherein closing the first valve occurs before opening the second valve.

39. (Original) The method of claim 36, further comprising:
opening a third valve to dispense a third pulse of the first gas into the reaction chamber through the first downstream main line after closing the second valve; and
closing the third valve.